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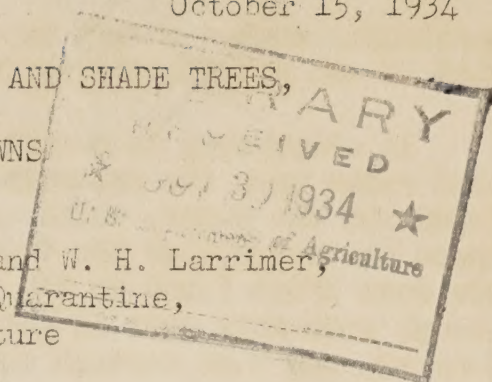
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THE CONTROL OF ANTS FOUND ON FRUIT AND SHADE TREES,

ORNAMENTAL SHRUBS, AND LAWNS

By B. A. Porter, William Middleton, and W. H. Larrimer,
Bureau of Entomology and Plant Quarantine,
U.S. Department of Agriculture



Ants are usually present in considerable numbers on shade and fruit trees, ornamental shrubs, and lawns about the house. In most cases the ants cause no real damage, although their presence may be more or less annoying. Ants are often erroneously blamed for damage actually caused by some other agency, their association with the injury being incidental.

Ants are sometimes merely visitors attracted by some condition of the plants. Sap flowing from wounds often causes them to journey to and congregate about such wounds. Aphids, or plant lice, and other related sucking insects, which excrete a sweet sticky liquid called honeydew, also draw large numbers of ants. Occasionally ants have been known to transport aphids and other sucking insects to favorable food plants, and also to protect these insects from their natural enemies, thus becoming responsible for the presence or for the persistence of such infestations. Certain ants may even build protecting shelters over the sucking insects when the latter are above ground.

Although the annoyance caused by ants is generally the chief reason for objecting to their presence, they occasionally injure plants directly, either in feeding on them or in keeping the area about their nest bare or unshaded. By nesting about the roots, the ants may also injure and even kill plants, especially the lawn grasses and the smaller ornamentals. By their activities they may actually cover up the smaller plants, or they may destroy the proper contact of the plant with the soil.

Some kinds of ants bore into and nest in the interior of trees and the larger woody shrubs. Decayed and untreated limb stubs, as well as wounds of various origin, especially fire scars at the bases of trees, are favored points of entrance. This type of work often becomes very serious because the ant activities may completely honeycomb the trunk or a large limb until it breaks off.

Ants live in colonies and have a social organization possessing certain features in common with that of honeybees. They live in nests which they establish in the ground, in decayed trees, and in other places. The individuals most frequently observed are the workers, which gather food for the entire colony. The queens lay enormous numbers of eggs, and in the immature stages the ants are fed and cared for mostly by the workers. As there are different kinds or species of ants, and these vary greatly in their habits and relationships to vegetation, it is necessary to use various methods in handling the problems they present.

The Control

The control of ants is often difficult or impossible. No single measure can be recommended as satisfactory under all conditions. Several control methods will therefore

be recommended for the different species. The selection of the

particular method should depend chiefly on the cause of the trouble; that is, the kind of ant and what it is doing.

In attempting to control ants it should be borne in mind that permanent relief rests upon the extermination of the colony, especially the reproductive forms and the young, which are deep down and well protected within the nest. If these are not killed the trouble is nearly certain to occur again. The nests are most often found in the ground near the plants that are being attacked, although some ants nest in decayed portions of the trees. If the nests can be located, the most certain method of control is fumigation.

Fumigation

When the nests are in the ground, holes should be made about a foot apart and several inches deep in the ground throughout the entire nest area. Into each of these holes a small quantity (2 or 3 tablespoonfuls) of carbon disulphide should be poured. The holes should then be closed and the ground covered for several days with some gas-proof material, such as building paper weighted down with stones. Carbon disulphide is inflammable and, under some conditions, explosive. The liquid should therefore be handled carefully and not exposed to fire or sparks.

Sometimes ants nesting in trees may also be controlled by injecting carbon disulphide into the ant galleries. An oil can will serve very satisfactorily for injecting the fluid into the nest openings. After the injections have been made, all the openings in the nest should be kept plugged tightly with some gas-proof material, such as grafting wax, putty, or wet clay, for several days. This will kill the ants in the cavity fumigated, after which the infested and decayed areas should be removed down to sound wood. In some cases the removal of the decayed wood will eliminate the ants without fumigation. The interior of the cavity or cavities should then be cleaned and the surface thickly coated with some waterproof preservative, such as coal-tar creosote or a good white-lead paint. These materials must not, however, be applied so as to permit their coming in contact with the freshly cut edges of the living bark, where a shellac should be used.

Some species of ants may also be controlled by dusting powdered calcium cyanide into their nests. On contact with the moisture in the air, this material liberates hydrocyanic acid gas, which is a deadly poison.

Use of Poisoned Sirups and Baits

In a great many cases ants may be readily controlled by the use of poisoned sirups. On finding the sirup the ants carry it to their nests and feed it to the reproductive forms and the young, and thus the entire colony is destroyed. The sirup should be placed where the ants have easy access to it, in a suitable container, which should be so constructed that the ants may enter and leave it readily. In protected places the bait may be exposed in a shallow dish, or in an ordinary pasteboard box with holes cut in its sides. If it is necessary to expose the container to weather, it is better to use a metal salve box, a heavily paraffined container, or a small glass jar with a type of cover that permits the ants to enter and leave. The poisoned sirup should be placed on a sponge or cloth, or on a mass of non-resinous ex-

The following are three of the more common formulas for poisoned sirup:

Formula 1: Sugar 4 ounces
 Water 1 quart
 Tartar emetic 1/2 ounce

Make a sirup by dissolving the sugar in hot water; then add the tartar emetic.

Formula 2: Sugar 1/2 pound
 Water 1 pint
 Sodium arsenate 1/7 ounce (62.5 grains)

Dissolve the sugar in hot water; add the sodium arsenate; boil and strain.

Formula 3 (this formula is recommended for the control of the Argentine ant, which occurs only in some of the Southern States and in certain parts of California):

Granulated sugar 9 pounds
 Tartaric acid (crystallized) 6 grams
 Benzoate of soda 8.4 grams
 Water 9-1/2 pints
 Sodium arsenite (C.P.) 15 grams
 Honey (strained) 1-1/4 pounds

Add the sugar, tartaric acid, and benzoate of soda to 9 pints of the water, boil the mixture slowly for 30 minutes, then allow it to cool. Dissolve the sodium arsenite in 1/2 pint of hot water and allow it to cool. Add this poison solution to the sirup and stir well. Then add the strained honey and mix thoroughly.

Recent experiments have shown that fairly good control of ants may be obtained in small areas, particularly on lawns, by scattering broadcast, over the area where the nests occur, a mixture of brown sugar and paris green, in the proportion of 1 ounce of paris green to 1 pound of brown sugar. This mixture should be scattered very thinly so as not to endanger birds or domestic animals. The ants will find it, feed on it, and also carry it as food into their nests. One pound of the mixture will usually be enough for two treatments of the nests on a lawn of 10,000 square feet. A second treatment is usually necessary after a period of about 10 days.

Elimination of Sources of Attraction

In cases in which the honeydew excreted by plant lice or other sucking insects is responsible for the presence of the ants, the removal of the source of attraction will solve the problem, at least for a time. The parts of the plants infested should be sprayed thoroughly and repeatedly with the following material, making sure that this liquid wets the surface of the honeydew-excreting insects:

Nicotine sulphate 2 teaspoonfuls
 Soap (fish oil or 1 ounce
 Water 1 gallon

It will usually be necessary to repeat this spray treatment about a week later, and it may be necessary to continue spraying at weekly intervals for several weeks before the sucking insects have entirely disappeared. If spraying for aphids is deferred until the leaves have been badly curled, the results will be disappointing, since the solution must hit the aphids to kill them.

If a sappy wound in a tree is the source of attraction for the ants, this area should be thoroughly cleaned out with a hammer and chisel or gouge. Cut down to sound, hard wood and then treat the exposed wood surface as follows: Shellac the edges of the wound where the bark and wood meet, carrying the shellac coating about an inch into the cavity. Paint the interior of the wound from the shellaced edge with coal-tar creosote. The cavities may be filled or left open as desired, but they should be examined at least once a year and the wood preservation treatment repeated if necessary.

Caution

It should be borne in mind that all of the formulas recommended contain materials that are extremely poisonous to human beings and to domestic and wild animals. Extreme care should therefore be used in handling, preparing, exposing, and storing them. Children and domestic animals should be kept from the areas where the materials, especially the poisoned sirups, are being used.

Care should be used in fumigating ant nests with either calcium cyanide or carbon disulphide, as the fumes of the former are very deadly, while those of the latter are inflammable, explosive, ill smelling, and poisonous if breathed in quantities. Furthermore, fumigation with either of these materials involving the entire or almost the entire root system of a plant may kill it. For this reason small and valuable plants in or near an ant nest should be transplanted temporarily, the nest fumigated, and the plants replaced later.